# QUALITY ASSURANCE WORK PLAN
# CORNELL/DUBILIER ELECTRONICS
# SOUTH PLAINFIELD, NJ

Prepared by
Roy F. Weston, Inc.

JUNE 1997

U.S. EPA Work Assignment No. 2-262
WESTON Work Order No. 03347-142-001-2262-01
U.S. EPA Contract No. 68-C4-0022

Kenneth Robbins — 6/27/97
Task Leader — Date

William Grunstra — 6/27/97
COL Certification — Date

Edward F. Gilardi — 6/27/97
REAC Program Manager — Date

262\ del\wp\9706\wp2262.wpd

## 1.0 OBJECTIVE

The purpose of this quality assurance work plan (QAWP) is for the Response Engineering and Analytical Contract (REAC) to provide technical assistance to U.S. Environmental Protection Agency (U.S.EPA) Environmental Response Team Center (ERTC) in determining the extent of contamination in the interiors of small businesses in South Plainfield, NJ, where polychlorinated biphenyls (PCBs)/metals contamination has been identified.

## 2.0 PROJECT SCOPE

The site is located in the City of South Plainfield in the State of New Jersey. The project scope entails determining the extent of contamination of PCBs/metals in small businesses occupying warehouse/manufacturing space. See section five for the project schedule.

REAC will arrange for:

- protective gear
- sample collection
- sample disposal
- analysis
- sampling equipment
- sample containers
- sampling personnel

## 3.0 TECHNICAL APPROACH

### 3.1 Media/Matrix

The event involves air, chip and vacuum sampling for:

- PCBs
- Lead (Pb) and Cadmium (Cd)

### 3.2 Sampling Equipment

#### 3.2.1 Air Sampling Equipment

- Personal sampling pump
- Polyurethane foam w/ glass fiber prefilter (PCBs)
- 0.8 micron mixed cellulose ester (Metals)

#### 3.2.2 Chip Sampling Equipment

- Chisel
- Scoop

#### 3.2.3 Vacuum Sampling Equipment

- High Efficiency Particulate Air (HEPA) Vacuum

### 3.3 Field Sampling Design

#### 3.3.1 Air Sampling

Air sampling for PCBs was conducted using personal sampling pumps and appropriate sampling train consisting of tygon tubing, polyurethane foam (PUF) glass sampling cartridge assembly, and a 37-mm glass fiber particulate filter. Samples were analyzed using a modified U.S. EPA Toxic Organic Method 10 (U.S. EPA/TO-10), ["*Determination of Organochlorine Pesticides in Ambient Air Using Low Volume Polyurethane Foam (PUF). Sampling with Gas Chromatography/Electron Capture Detector (GC/ECD)*"]. Each sample was collected at an average target flow rate of 2 L/min. Each sampling event was 8-hours. The sample locations were designated by the Work Assignment Manager on site.

Air sampling for metals was conducted using personal sampling pumps and appropriate sampling train consisting of tygon tubing, tube holder, and a 0.8 micron cellulose ester membrane filter. Samples were analyzed using a modified NIOSH Method 7300, "Elements Inductively Coupled Plasma (ICP)". Each sample was collected at an average target flow rate of 2 L/min. Each Sampling event was 8 hours. The sample locations were designated by the Work Assignment Manager on site.

3.3.2 Chip Sampling

Chip sampling for PCBs and metals were conducted by removing two layers of cement from the floors of buildings in locations designated by the Work Assignment Manager utilizing a hammer and chisel. The sample areas were approximately 6" X 6". The first sample was taken from the top 1/4" of the sample area, the second sample was taken from a depth of approximately 1/4" to 3/4". The samples were analyzed for PCBs using Method 8080/SW-846 and were analyzed for metals using Method SW-846.

3.3.3 Vacuum Sampling

Vacuum sampling for PCBs and metals were conducted by vacuuming accumulated dust from floors, shelves and other horizontal surfaces in the building, creating a composite sample. The sample was collected in a vacuum bag and sieved through a 100 mesh sieve. The samples were analyzed for PCBs using Method 8080/SW-846 and were analyzed for metals using Method SW-846.

3.4 Standard Operating Procedures

3.4.1 Sample Documentation

Sample documentation will be completed per the following USEPA/ERTC-REAC Standard Operating Procedures (SOPs):

- USEPA/ERTC-REAC SOP #2002, *Sample Documentation*
- USEPA/ERTC-REAC SOP #4005, *Chain of Custody Procedures*

3.4.2 Sample Packaging and Shipment

Sample packaging and shipment will be conducted in accordance with the following USEPA/ERTC-REAC SOP:

- USEPA/ERTC-REAC SOP #2004, *Sample Packaging and Shipment*

### 3.5 Waste Disposal

#### 3.5.1 Investigation-Derived Waste Disposal

Investigation-Derived Waste (IDW) was disposed of according to the site's existing procedure.

#### 3.5.2 Sample Residuals Disposal

All of the treated and untreated samples will be maintained for 60 days after the issuance of the final report. If no additional testing has been requested at the end of the 60 days, with the approval and concurrence of the Task Leader, arrangements will be made for disposal.

## 4.0 PROJECT MANAGEMENT AND REPORTING

The REAC Task Leader will maintain contact with the U.S. EPA/ERTC Work Assignment Manager to provide information on the technical and financial progress of this project. This communication will commence with the issuance of the work assignment and project scoping meeting. Activities under this project will be reported in status or trip reports and other deliverables (e.g., analytical reports, final reports) identified in Section 8.0. Activities will also be summarized in appropriate format for inclusion in REAC Monthly and Annual Reports.

In accordance with the terms and conditions of U.S. EPA Contract Number 68-C4-0022, Roy F. Weston, Inc. (WESTON®) has conducted a conflict of interest search of Corporate records and databases for the Cornell/Dubilier Electronics, South Plainfield, NJ, and to the best of WESTON's knowledge and belief, no actual or potential organizational conflict of interest exists.

WESTON and C.C. Johnson & Malhotra, P.C. (CCJM) personnel performing work under this work assignment have received the REAC Conflict of Interest Plan and have been informed of their obligation to report personal conflicts of interest. Each employee has agreed to this policy by signing a statement related to conflict of interest responsibilities. In addition, WESTON and CCJM will conduct searches of corporate conflict of interest databases in reference to this work assignment. Any actual or potential conflict of interest associated with this work assignment will be brought to the attention of the Contract and Project Officers. Lastly, WESTON recognizes the continuing obligation to identify and report any actual or potential conflicts of interest arising at anytime during performance of this work assignment.

## 5.0 PROJECT SCHEDULE

The work assignment for this project was received on 6/04/97. The Quality Assurance Work Plan (QAWP) was initiated at that time, developed, and completed after the initiation of field activities on 6/09/97. Samples were transferred to the lab on 6/10/97 and preliminary results are expected 07/01/97. The overall project is expected to close out with the issuance of a final report 08/05/97. Refer to Section 8.0 for additional deliverables and tasks.

## 6.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

The REAC Task Leader/Quality Control (QC) Coordinator, Kenneth Robbins, is the primary REAC point of contact with the U.S. EPA Work Assignment Manager. The Task Leader is responsible for the development and completion of the QAWP , project team organization, and supervision of all project tasks, including reports and deliverables. In addition, the QC Coordinator is responsible for ensuring field adherence to the QAWP and recording any deviations from the QAWP.

The following REAC field sampling personnel will work on this project:

| Personnel | Responsibility |
|---|---|
| Kenneth Robbins | Task Leader |
| Phil Solinski | Sampler |
| Al Lupiano | Sampler |

The REAC QA Officer is Edward McGovern, the Health and Safety Officer is Thomas Mignone, the Operations Section Leader is Edward Gilardi, and the Analytical Section Leader is Vinod Kansal. These individuals are responsible for auditing and guiding the project team, reviewing/auditing the deliverables and proposing corrective action, if necessary, for nonconformity to the QAWP or Health and Safety Plan (HASP).

While not specifically identified, activities such as electronic technical data documentation, video documentation, photodocumentation, computer graphics and support, statistics, word processing, report preparation, and purchasing support may be required in order to accomplish the objectives of this project.

The following identified laboratories are expected to provide the listed analyses:

| Lab Name | Location | Parameters |
|---|---|---|
| REAC | Edison, NJ | PCB |
| Keiber Environmental | Atlanta, GA | Pb, Cd |

## 7.0 MANPOWER AND COST PROJECTIONS

The estimated costs (including labor, travel, materials and equipment, subcontractor, and analytical laboratory services) to complete this project are presented in the attached cost summary sheet.

It is anticipated that the following trips will be made in support of the project:

| | |
|---|---|
| • Number of trip(s) (destination) | 2 trips to South Plainfield |
| • Number of day(s) | 2 |
| • Number of personnel | 2 |
| • Other relevant costs (including travel costs) | $500 |

## 8.0 DELIVERABLES AND TASKS

The following deliverables will be provided under this project:

| Item | Date |
|---|---|
| QAWP | 06/20/97 |
| Technical Report Abstract (Project Summary) | 06/23/97 |
| Trip Report | 06/23/97 |
| Analytical Report | 07/22/97 |
| Draft Final Report | 07/29/97 |
| Final Report | 08/05/97 |

The following tasks will be performed for this project:

| Item | Date |
|---|---|
| Field Activities | 06/06/97 to 06/09/97 |
| Analysis | 06/10/97 to 07/01/97 |
| Data Review | 07/01/97 to 07/22/97 |

All project deliverables and task dates are estimates based on the information available at the time of QAWP completion. New information, additional tasks, changes in scope, and events outside the control of REAC may result in revisions to these dates.

## 9.0 QUALITY ASSURANCE

**The following QA Protocols for QA2 data are applicable to all sample matrices:**

1. Sample documentation in the form of field logbooks, the appropriate field data sheets, and chain of custody forms will be provided. Chain-of-custody sheets are optional for field screening locations.
2. All instrument calibration and/or performance check procedures/methods will be summarized and documented in the field,personal, or instrument log notebook.
3. Detection limit(s) will be determined and recorded, along with the data, where appropriate.
4. Sample holding times will be documented; this includes documentation of sample collection and analysis dates.
5. Initial and continuing instrument calibration data will be provided.

6a. For **soil, sediment and water samples**, rinsate blanks, field blanks, and trip blanks will be included at the rate specified in Table 9.1, footnotes 2 and 3.

6b. For **air samples**, lot blanks, field blanks, collocated samples, trip blanks, and breakthrough samples will be included at the rate specified in Table 9.2, footnotes 1-7.

6c. For **soil gas samples**, duplicate samples, zero air samples, field standards, ambient air samples, and matrix spikes will be included at the rate specified in Table 9.1, footnotes 2-6.

7. Performance Evaluation (PE) samples are optional, if available.

   a. **Definitive Identification** - analyte identification on 10 percent of the screened (field or lab) or 100 percent of the unscreened samples will be confirmed using a U.S. EPA-approved method; documentation such as chromatograms, mass spectra, etc. will be provided.

   b. **Quantitation** - documentation for quantitative results from screening and U.S. EPA-approved verification methods (for screened samples) or quantitative results (in the case of unscreened samples) will be provided.

The number of samples to be collected for this project/event are presented in Table 9.1, Field Sampling Summary, and Table 9.2, QA/QC Analysis and Objectives Summary. These tables identify analytical parameters desired; type, volume and number of containers needed; preservation requirements; number of samples to be collected; and associated number and type of QA/QC samples based on the QA level.

All project deliverables will receive an internal peer review prior to release, per guidelines established in the REAC Administrative Procedure (AP #22 *Peer Review of REAC Deliverables).*

TABLE 9.1 Field Sampling Summary - Chip & Vacuum Dust

| | | | | | | | QC Extras | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Parameter | Action Level[1] | Matrix* | Container Type and Volume (# Containers req'd) | Preservative | Holding Times | Subtotal Samples | Rinsate Blanks[2] | Field/ Trip Blanks[3] | PE Samples[4] | Total Matrix Spikes[5] | Total Field Samples[6] |
| PCB | Low ppm | C | 8-oz glass (1) | 4°C | 7/40 days | 14 | NA | NA | 0 | 0 | 14 |
| METALS (Pb, Cd) | Low ppm | C | 8-oz glass (1) | 4°C | 6 months | 14 | NA | NA | 0 | 0 | 14 |
| PCB | Low ppm | V | 8-oz glass (1) | 4°C | 7/40 days | 4 | NA | NA | 0 | 0 | 4 |
| METALS (Pb, Cd) | Low ppm | V | 8-oz glass (1) | 4°C | 6 months | 4 | NA | NA | 0 | 0 | 4 |

* Matrix: C - Chip, V - Vacuum Dust

NA Denotes Not Applicable

1. The concentration level, specific or generic, that is needed in order to make an evaluation. This level will provide a basis for determining the analytical method to be used.
2. If dedicated sampling tools are not used, rinsate blanks are required for the aqueous matrix. They are optional for the soil matrix. For QA2 and QA3, a minimum of one blank is required per type of sampling device per day. For QA1, enter "NA."
3. Field blanks are required for aqueous and nonaqueous matrices. Aqueous field blanks are prepared with distilled/deionized water and nonaqueous field blanks are prepared with clean sand or soil. For QA2 and QA3, one blank is required per day. For QA1, enter "NA." For QA2 and QA3, one trip blank required per cooler used to transport VOA samples. For QA1, enter "NA." Each aqueous trip blank consists of two 40-mL vials filled with distilled/deionized water. Each nonaqueous trip blank consists of two 40 mL vials filled with clean sand or soil.
4. Performance evaluation samples are optional for QA2 and mandatory for QA3 at one per parameter per matrix. For QA1, enter "NA."
5. Ensure that a sufficient volume of environmental sample is collected for lab spiking. All analyses conducted at the REAC laboratories require matrix spike samples at a frequency of ≥ 10 percent of the total samples, regardless of QA objective. In addition, for QA2 (optional) and for QA3 (mandatory): Determine bias (percent recovery) using a minimum of two matrix spikes. Determine precision using a minimum of eight matrix spikes.
6. Add the numbers of rinsate blanks, field blanks, trip blanks, and PE samples to the subtotal number of samples to determine this.

TABLE 9.2 QA/QC Analysis and Objectives Summary - Chip & Vacuum Dust

| | | | Matrix Spikes | | QA/QC | |
|---|---|---|---|---|---|---|
| Analytical Parameter | Matrix* | Analytical Method Ref. | Lab[1] | Additional[2] | Detection Limits[3] | QA Objective[4] |
| PCBs | C | 8080/SW-846 | 1 | 0 | Low ppm | QA2 |
| METALS (Pb, Cd) | C | SW-846 | 1 | 0 | Low ppm | QA2 |
| PCBs | V | 8080/SW-846 | 1 | 0 | Low ppm | QA2 |
| METALS (Pb, Cd) | V | SW-846 | 1 | 0 | Low ppm | QA2 |

* Matrix: C - Chip, V - Vacuum Dust

1. Ensure that a sufficient volume of environmental sample is collected for lab spiking. All analyses conducted at the REAC laboratories require matrix spike samples at a frequency of ≥10 percent of the total samples, regardless of QA objective.
2. For QA2 (optional) and for QA3 (mandatory): Determine bias (percent recovery) using a minimum of two matrix spikes. Determine precision using a minimum of eight matrix spikes. Laboratory matrix spikes may be utilized to fulfill these additional QA requirements.
3. To be determined by the person arranging the analysis. Should be equal to or less than the action level.
4. Enter QA objective desired: QA1, QA2, or QA3.

TABLE 9.3 Field Sampling Summary - Air

| Analytical Parameter | Action Level[1] | Sampling Media | Suggested Holding Times | Flow Rate | Volume Min - Max | Subtotal Number Samples |
|---|---|---|---|---|---|---|
| PCBs | Low ppb | PUFs/Filters | 1 week | 2-3 L/min (small PUF) | As per WAM | 12 |
| Elements (ICP) | Low ppb | 0.8-μm Filter (MCE) | 1 week | 1-4 L/min | 5 L-<br>2000 L | 12 |

1. The concentration level, specific or generic, that is needed in order to make an evaluation. This level will provide a basis for determining the analytical method to be used.

TABLE 9.4 QA/QC Analysis and Objectives Summary - Air

| Analytical Parameter | Analytical Method | Estimated Limit of Detection[1] | Lot Blanks[2] | Field Blanks[3] | Collocated Samples[4] | Trip Blanks[5] | Breakthrough[6] | PE Samples[7] | QA Objective[8] |
|---|---|---|---|---|---|---|---|---|---|
| PCBs | TO10 | >1 ng/m³ | 1 | 1 | 0 | 0 | 0 | 0 | QA2 |
| Elements (ICP) | NIOSH 7300 | .005-5 mg/m³ | 1 | 1 | 0 | 0 | 0 | 0 | QA2 |

1. To be determined by the person arranging the analysis. Should be equal to or less than the action level.
2. Required for all QA levels at a minimum rate of 10 percent of the total sample or one per sampling event per lot.
3. Mandatory for QA2 and QA3 at a minimum rate of 5 percent of the total sample or one per sampling event. Certain methods may require a greater frequency.
4. Required for all QA levels at a minimum rate of 5 percent of the total sample or one per sampling event.
5. Mandatory for QA2 and QA3 at a minimum rate of 5 percent of the total sample or one per sampling event.
6. Recommended for QA2 and QA3. Rate is method dependent. Requirement for use is based on deviations from accepted protocol and atmospheric conditions.
7. Performance evaluation samples are optional for QA2 but mandatory for QA3 at one per parameter per matrix. For QA1, enter "NA."
8. Enter QA objective desired: QA1, QA2, or QA3.

REAC PROJECT COST SUMMARY
CORNELL DUBILIER ELECTRONICS
EPA WORK ASSIGNMENT NO. 2-262
WESTON WORK ORDER NO. 03347-142-001-2262-01

LABOR PLAN (HOURS PER MONTH)

| DESCRIPTION | JUN 97 | JUL 97 | AUG 97 | SEP 97 | OCT 97 | NOV 97 | DEC 97 | JAN 98 | FEB 98 | MAR 98 | APR 98 | MAY 98 | TOTAL HOURS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P4 | 10 | 10 | 10 | 10 | | | | | | | | | 40 |
| P3 | 60 | 65 | 65 | 30 | | | | | | | | | 220 |
| P2 | 60 | 65 | 65 | 30 | | | | | | | | | 220 |
| P1 | 50 | 75 | 75 | 25 | | | | | | | | | 225 |
| T3 | 20 | 20 | 20 | 10 | | | | | | | | | 70 |
| T2 | | | | | | | | | | | | | 0 |
| T1 | | | | | | | | | | | | | 0 |
| OFF-SITE | | | | | | | | | | | | | 0 |
| TOTAL MHS | 200 | 235 | 235 | 105 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 775 |
| CUMULATIVE MHS | 200 | 435 | 670 | 775 | 775 | 775 | 775 | 775 | 775 | 775 | 775 | 775 | |

DOLLAR PLAN

| DESCRIPTION | JUN 97 | JUL 97 | AUG 97 | SEP 97 | OCT 97 | NOV 97 | DEC 97 | JAN 98 | FEB 98 | MAR 98 | APR 98 | MAY 98 | TOTAL DOLLARS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P4 | 652 | 652 | 652 | 652 | | | | | | | | | 2609 |
| P3 | 2910 | 3152 | 3152 | 1455 | | | | | | | | | 10670 |
| P2 | 2208 | 2392 | 2392 | 1104 | | | | | | | | | 8094 |
| P1 | 1087 | 1631 | 1631 | 544 | | | | | | | | | 4892 |
| T3 | 468 | 468 | 468 | 234 | | | | | | | | | 1639 |
| T2 | 0 | 0 | 0 | 0 | | | | | | | | | 0 |
| T1 | 0 | 0 | 0 | 0 | | | | | | | | | 0 |
| OFF SITE | 0 | 0 | 0 | 0 | | | | | | | | | 0 |
| DIR. MAT'L. & SUPP. | 580 | 0 | 0 | 0 | | | | | | | | | 580 |
| TRAVEL | 116 | 0 | 0 | 0 | | | | | | | | | 116 |
| SHIPPING \ COMMUNICATIONS | 0 | 0 | 0 | 0 | | | | | | | | | 0 |
| VENDOR SERVICES \ LAB ANALYSIS | 500 | 0 | 0 | 0 | | | | | | | | | 500 |
| EQUIPMENT (NON-EXPENDABLE) | 0 | 0 | 0 | 0 | | | | | | | | | 0 |
| OTHER DIR. COSTS | 1160 | 0 | 0 | 0 | | | | | | | | | 1160 |
| SUBTOTAL $ | 9682 | 8295 | 8295 | 3989 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30261 |
| CUMULATIVE $ | 9682 | 17977 | 26272 | 30261 | 30261 | 30261 | 30261 | 30261 | 30261 | 30261 | 30261 | 30261 | |